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(56) Documents Cited

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(58) Field of Search

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(54) Abstract Title

Adjustable pallet

(57) A pallet 1 which is adjustable in size preferably comprises elongate substantially spaced apart parallel load support members 2 which are each extensible in length. The spaced apart load support members 2 may also be adjustable in spacing. At least two adjacent load support members 2 may be adjustable in spacing. The load support members 2 preferably comprise an external part 5 which is slidable on an internal part 4 thereof. The parts may be telescopically slidable. The spaced apart load support members may be mountable on substrate engaging members 3. One of the substrate engaging members 3 may include a mechanism for adjusting the spacing between the at least two adjacent load support members 2. The adjustment of length and/or spacing of the load support members 2 may be effected by a screw mechanism. The screw mechanism may further be operated by a removable handle or power tool.

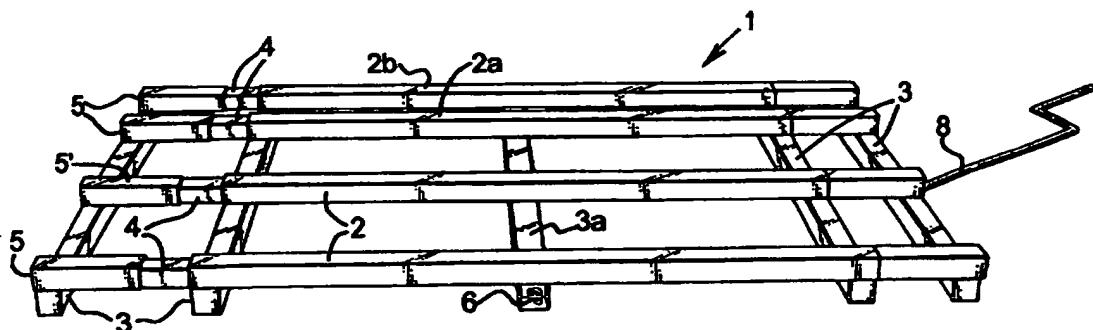


Fig. 1

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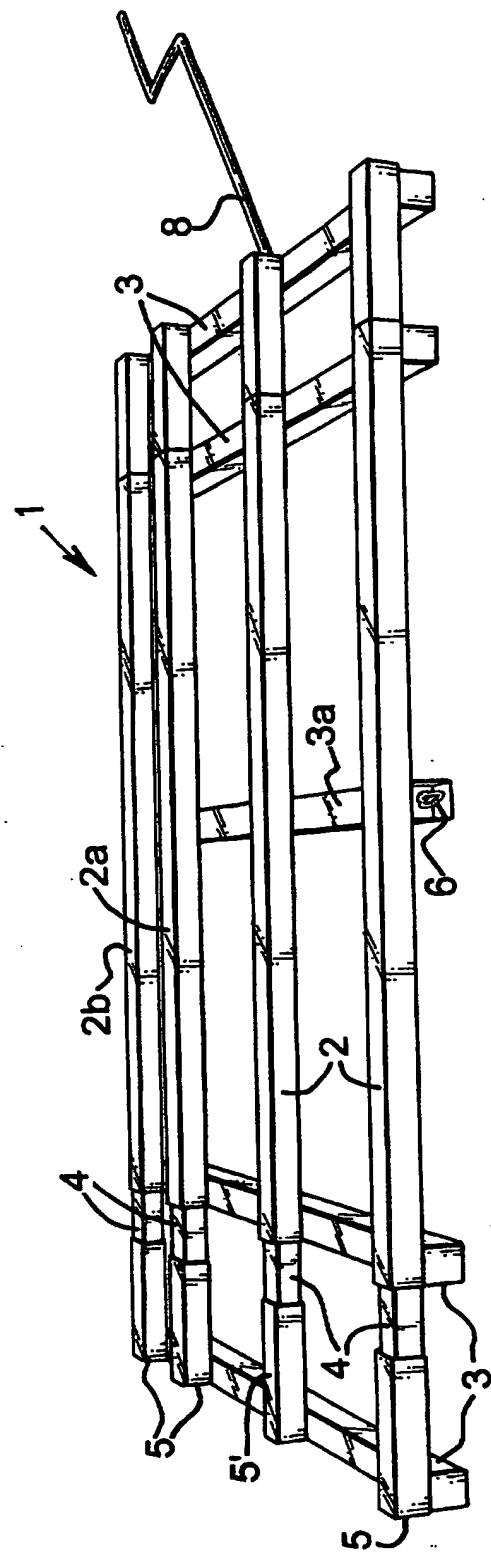


Fig. 1

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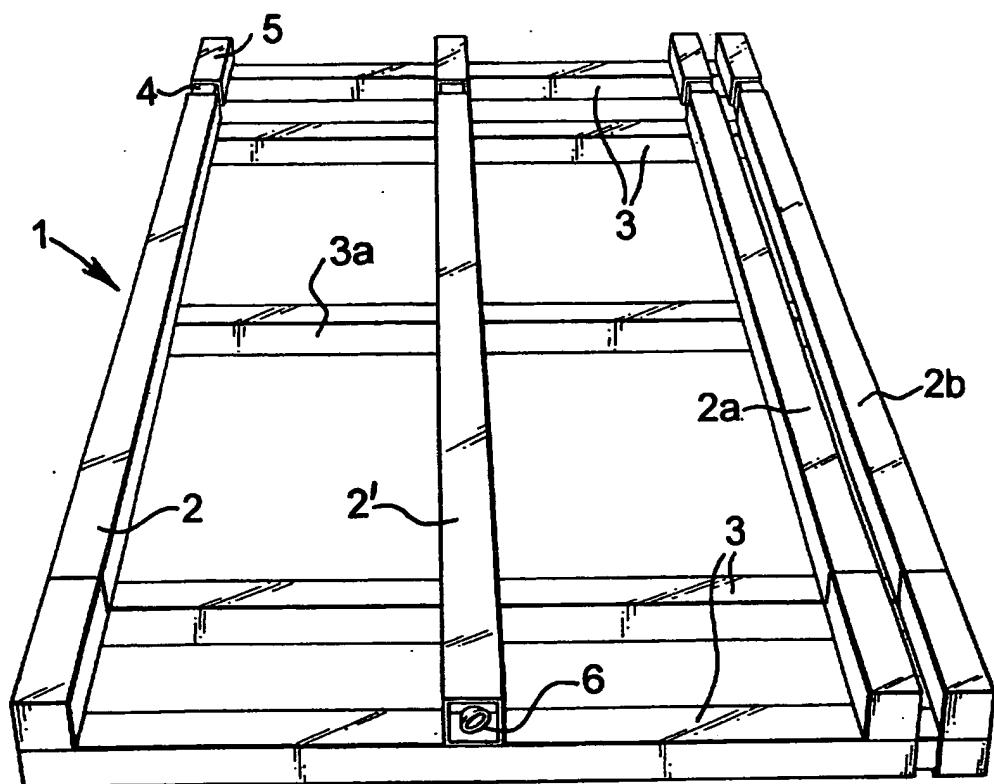


Fig. 2

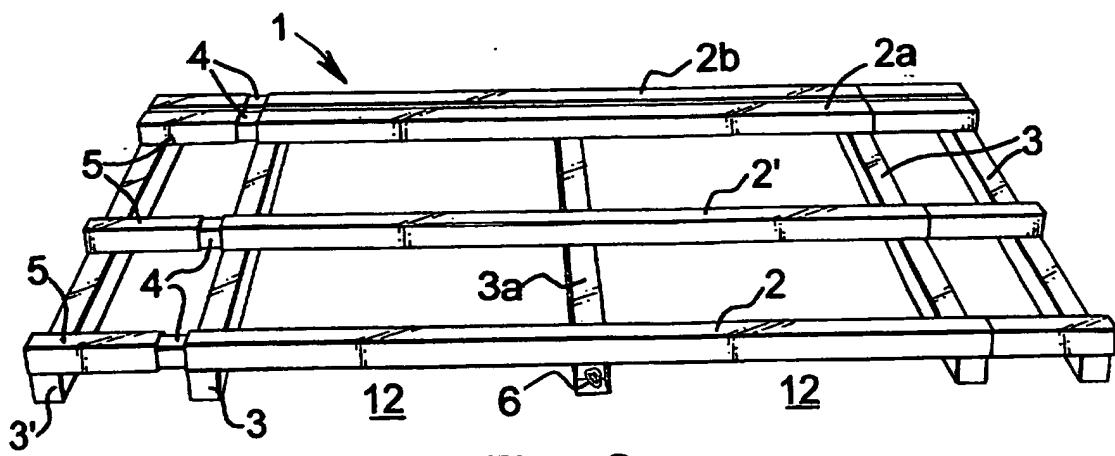


Fig. 3

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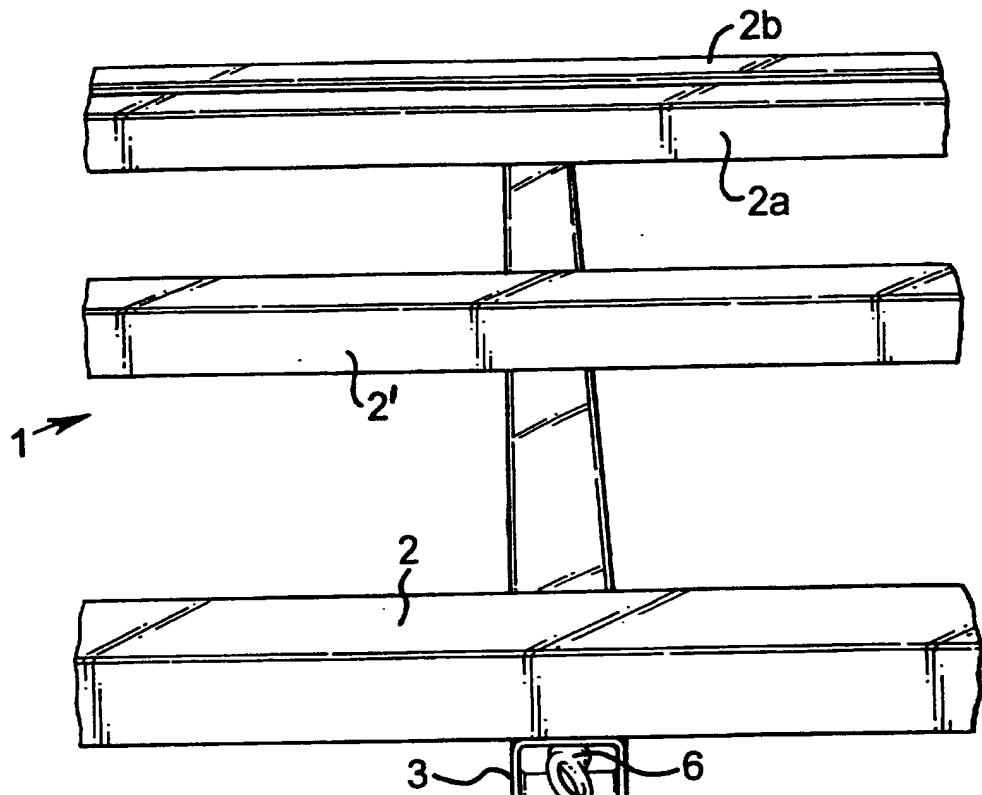


Fig. 4

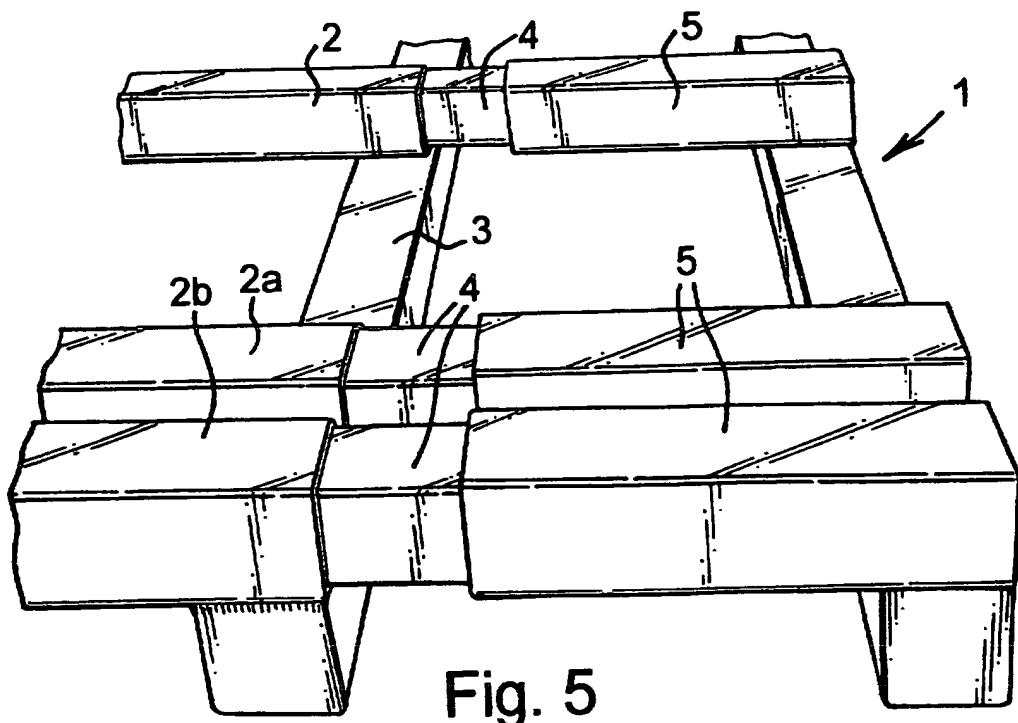


Fig. 5

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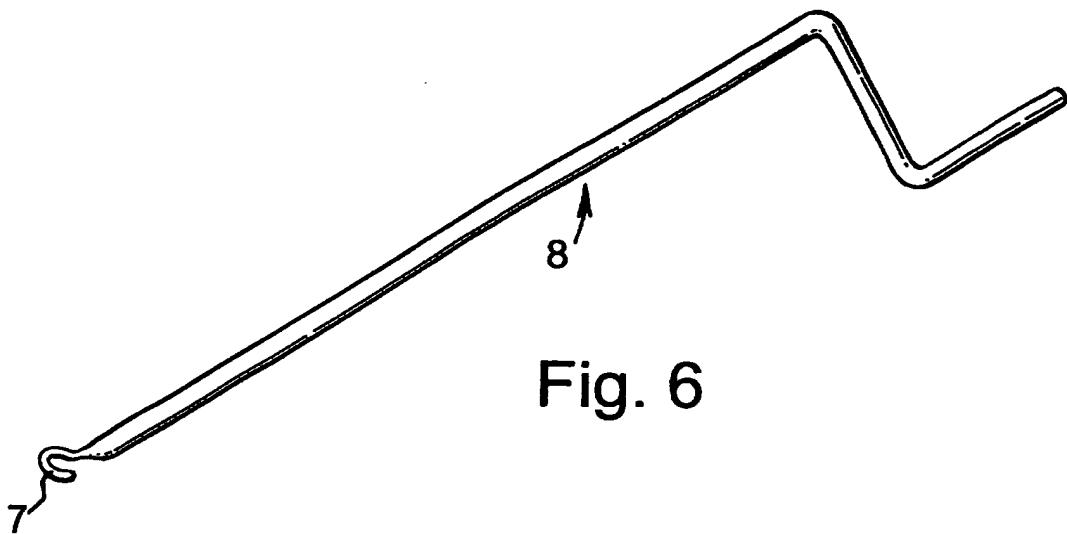


Fig. 6

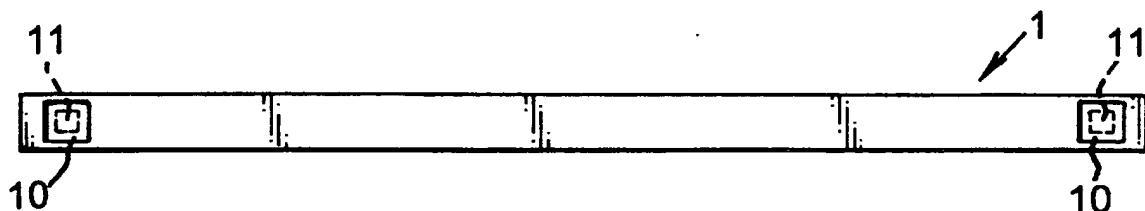


Fig. 7

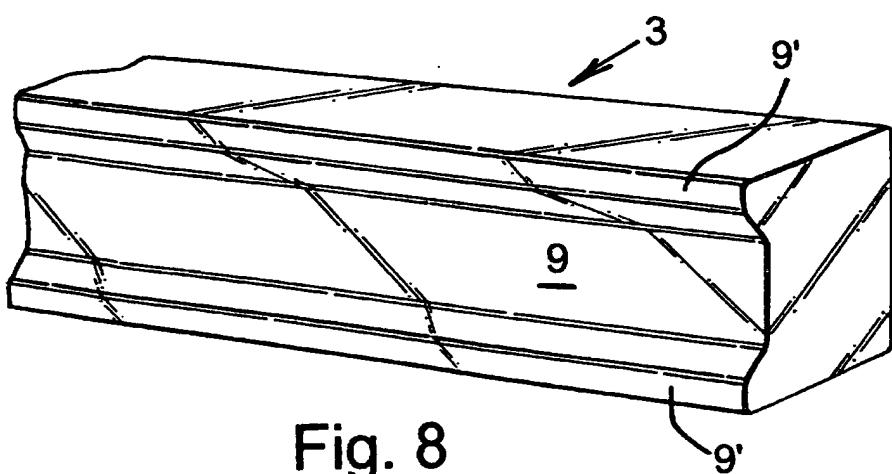


Fig. 8

PALLETS

The invention relates to pallets.

Pallets are used for storage and transport of all manner of goods, for example steel strip or coils produced by steel works. The pallets can be used for moving the steel round a works, for storage, and for delivery to customers. It will be appreciated that the goods vary in size over a vast range of sizes.

Traditionally, pallets are provided in a standard size, and are therefore often not suited for many of the goods they might otherwise receive.

Also, they are usually made of wood, which is heavy, splinters and is thus a hazard to health and safety in the work-place, and are often not returnable or recyclable, though it is often the case that up to 50% are recyclable.

It is accordingly an object of the invention to seek to mitigate these disadvantages.

According to the invention there is provided a pallet which is adjustable in size.

There may be elongate spaced apart substantially parallel load support members which may each be extensible in length. This provides for size adjustment, as may a construction in which at least two adjacent support members may be adjustable in spacing. This

provides for lateral, or width, adjustment.

Length and width adjustment may be provided as the pallet may comprise substantially spaced apart load support members which may each be extensible in length and at least two adjacent ones thereof may be adjustable in spacing.

The extensible load support members may each comprise an external part which is slidable on an internal part thereof, for example the respective parts may be telescopically slidable. This provides for relatively simple length adjustment.

The elongate support members may be mountable on substrate engaging members. Thus there may be skids or beams for supporting the pallet on the ground.

One of the elongate support members may include a mechanism for effecting adjusting the length of the pallet. Thus, as the load support members are connected by the substrate engaging skids or beams, action to adjust the length of the one member adjusts the length of the whole pallet.

One of the substrate engaging members may include a mechanism for adjusting the spacing between said two adjacent load support members.

The mechanism may comprise a screw mechanism, which may be operable manually, for example by a removable handle, such as a

jack.

Alternatively, the screw mechanism may be operable by a power tool such as an electric screw driver.

The mechanism may alternatively comprise a piston and cylinder arrangement, which may be pneumatic or hydraulic.

Moreover, the mechanism may comprise an electro-mechanical mechanism.

The substrate engaging members may comprise an outer profile for engaging a substrate. This provides that there is a reduced surface area of the said members in contact with the ground, which provides for relative ease of movement as by sliding thereover.

The profile may be concave for example of channel shape. The pallet may be made of steel or alternatively aluminium. In the latter case, there may be wear resistant members adjacent fork entry points, suitably the wear resistant members may comprise steel strips. This provides for protection of the relatively soft aluminium.

There may be means for stacking with another similar pallet, suitably in a relatively simple construction, comprising spigot and socket connections. This provides for non-sliding of one pallet off another when stacked vertically.

A pallet embodying the invention is hereinafter described, by way of

example, with reference to the accompanying drawings.

Fig. 1 is a side view of a pallet according to the invention in one condition;

Fig. 2 is an end view of the pallet of Fig. 1, in a second, adjusted, condition;

Fig. 3 shows a side view in the Fig. 2 condition;

Fig. 4 shows to an enlarged scale a mechanism for adjusting the size of the pallet;

Fig. 5 shows a close up of members of the pallet;

Fig. 6 shows an operating handle;

Fig. 7 shows schematically part of a pallet according to the invention with stacking means; and

Fig. 8 shows part of a profiled surface of a substrate-engaging member of the pallet.

Referring to the drawings there is shown a pallet 1 which is adjustable in size.

The pallet 1 shown is made of metal, either steel (possibly stainless) or aluminium.

The pallet has in the embodiment shown four spaced apart elongate load support members 2, the upper (as viewed) surfaces of which are planar and lie substantially in the same plane to provide a support surface for loads (not shown). Each load support member 2 is secured as by welding to five spaced apart substrate engaging members 3.

The members 2 and 3 are at substantially 90° as shown, and are of substantially square section.

There is an interior part 4 of each member 2 of smaller outside section projecting from one end of a main body part of each load support member 2, which parts 4 are received telescopically in the ends of shorter parts 5 of the elongate support members secured to an outer one 3' of the substrate engaging members 3. There is a mechanism in the form of a screw mechanism 6 interiorly of a member 2' and which is connected to the part so that on engagement of a connector such as a hook 7 of a removable operating handle 8 or jack with an eye or bolt of the mechanism 6, the length of the pallet 1 can be adjusted by manual rotation of the jack 8. As the part 5' extends or retracts, the parts 5 do so in unison as they are connected by the member 3'.

Likewise the spacing between the adjacent support lateral members 2a, 2b can be adjusted to adjust the width of the pallet 1 by operation of a similar screw mechanism 6 installed in the member 3a, the members 3 having a similar telescopic construction to that of the members 2.

Manual operation of the mechanism 6 by the jack rotates the mechanism to move the shorter part towards or away from the longer main part, so decreasing or increasing the gap between the members 2a, 2b and hence adjusting the width of the pallet 1.

The underside (in use) of the member 3 may be concave as shown at 9 of U-or channel shape, to provide a reduced surface area or "rails" 9' in contact with a substrate in the form of the ground so that movement of the members 3 over the ground during adjustment is facilitated.

Moreover, the pallets 1 can be stacked vertically and to avoid slippage of one from another, there may as shown in Fig. 7 be means in the form of a recess 10 at each end or corner of the top surface at the outermost support members and spigots or bosses 11 projecting from the underside of at least the outermost ground engaging members 3, so that when the spigots 11 and sockets 10 are aligned and engaged, pallets 1 are secured and cannot slip one off another.

The pallet 1 is designed to be lifted by forks of a fork lift truck. When the pallet is made of aluminium, the metal is protected by wear resistant members such as steel strips or liners applied to the vertical (in use) walls of the members and perhaps the underside (in use) of the members adjacent fork receiving entry points 12.

There may be tracker means (not shown) fitted to a pallet 1 so that it can be tracked in its movements and so that its position can be

accurately monitored.

It will be understood that modifications are possible. Thus both ends of the pallet 1 may be adjustable in length, and so may both sides. Also, the screw mechanism 6 may be replaced by any suitable means such as a pneumatic or hydraulic piston and cylinder arrangement or an electro-mechanical arrangement. The mechanism may be machine operated, as by an electric power tool.

In all embodiments, the pallet 1 may be adjusted in size so that it can be offered up to and inserted in a users' machine so that a load thereon, such as steel plates, can be worked on directly without the need for initial unloading from the pallet and subsequent mounting in the machine.

Using the pallet 1 described herein, with reference to the drawings, virtually the whole of a user's pallet size requirement can be catered for so obviating the need for a large pallet inventory.

CLAIMS

1. A pallet which is adjustable in size.
2. A pallet according to Claim 1, comprising elongate substantially spaced apart parallel load support members which are each extensible in length.
3. A pallet according to Claim 1, at least two adjacent support members being adjustable in spacing.
4. A pallet according to Claim 1, comprising substantially spaced apart load support members which are each extensible in length and at least two adjacent ones thereof are adjustable in spacing.
5. A pallet according to any of Claims 2 to 4, the extensible load support members each comprising an external part which is slidable on an internal part thereof.
6. A pallet according to Claim 5, the respective parts being telescopically slidable.
7. A pallet according to Claim 6, the elongate support members being mountable on substrate engaging members.
8. A pallet according to any of claims 2 to 7, one of the elongate support members including a mechanism for effecting adjusting the length of the pallet.

9. A pallet according to either of Claims 7 or 8, one of the substrate engaging members including a mechanism for adjusting the spacing between said two adjacent load support members.
10. A pallet according to Claim 9, the mechanism comprising a screw mechanism.
11. A pallet according to Claim 10, the screw mechanism being operable manually.
12. A pallet according to Claim 11, the screw mechanism being operable manually by a removable handle.
13. A pallet according to Claim 10, the screw mechanism being operable by a power tool.
14. A pallet according to Claim 8, the mechanism comprising a piston and cylinder arrangement.
15. A pallet according to Claim 14, the arrangement being pneumatic.
16. A pallet according to Claim 14, the arrangement being hydraulic.
17. A pallet according to Claim 8, the mechanism comprising an electro mechanical mechanism.

18. A pallet according to any of Claims 7 to 17, the substrate engaging members comprising an outer profile for engaging a substrate.
19. A pallet according to Claim 18, the profile being concave.
20. A pallet according to any preceding claim, made of steel.
21. A pallet according to any of Claims 1 to 19, comprising aluminium.
22. A pallet according to Claim 21, comprising wear resistant members adjacent fork entry points.
23. A pallet according to Claim 21, the wear resistant members comprising steel strips.
24. A pallet according to any preceding claim, having means for stacking with another similar pallet.
25. A pallet according to Claim 24, comprising spigot and socket connections.
26. A pallet according to any preceding claim comprising a tracker device whereby the whereabouts of the pallet can be identified.
27. A pallet, substantially as hereinbefore defined with reference to the accompanying drawings.



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Claims searched: 1-27

Examiner: Matthew Tosh
Date of search: 8 December 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): B8H (HLC, HRB, HRX, HXX)

Int Cl (Ed.6): B65D 19/26, 19/38

Other: ONLINE: EPODOC, WPI, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 1491218 (BRITISH STEEL). See description and figures.	1-6
X	GB 1190464 (RILEY). See description and figures.	1,20,21
X	GB 1149811 (CASES LTD.). See lines 15-60, page 1 and figures.	1,3
X	GB 767762 (WADDINGTON LTD.). See description and figures.	1
X	WO 98/36982 A2 (DECORBIE). See description (line 20, page 1 to line 9, page 2) and figures.	1,3,5-12
X	US 2739776 (TERANDO). See description and figures.	1-5
X	FR 2737883 A1 (DECORBIE). See description and figures.	1,3,6-12
X	FR 2674504 A1 (SOC. TRANSFORMATION). See lines 3-9, page 2, line 39, page 3 to line 4, page 4 and figures.	1,2
X	FR 2629055 A1 (IMBERT). See abstract and figures.	1,3
X	DE 3440123 A1 (GERHARD). See abstract and figures.	1-6,24,25

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